

Gabor Karsai

List of Publications by Year in descending order

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Version: 2024-02-01

201
papers

5,070
citations

201575

27
h-index

123376

61
g-index

205
all docs

205
docs citations

205
times ranked

2805
citing authors

#	ARTICLE	IF	CITATIONS
1	Composing domain-specific design environments. <i>Computer</i> , 2001, 34, 44-51.	1.2	690
2	Software Engineering for Self-Adaptive Systems: A Research Roadmap. <i>Lecture Notes in Computer Science</i> , 2009, , 1-26.	1.0	624
3	Model-integrated computing. <i>Computer</i> , 1997, 30, 110-111.	1.2	323
4	Software Engineering for Self-Adaptive Systems: A Second Research Roadmap. <i>Lecture Notes in Computer Science</i> , 2013, , 1-32.	1.0	317
5	Model-integrated development of embedded software. <i>Proceedings of the IEEE</i> , 2003, 91, 145-164.	16.4	284
6	Toward a Science of Cyber-Physical System Integration. <i>Proceedings of the IEEE</i> , 2012, 100, 29-44.	16.4	247
7	A domain-specific visual language for domain model evolution. <i>Journal of Visual Languages and Computing</i> , 2004, 15, 291-307.	1.8	97
8	The design of a language for model transformations. <i>Software and Systems Modeling</i> , 2006, 5, 261-288.	2.2	73
9	Challenges and directions in formalizing the semantics of modeling languages. <i>Computer Science and Information Systems</i> , 2011, 8, 225-253.	0.7	70
10	A testbed for secure and robust SCADA systems. <i>ACM SIGBED Review</i> , 2008, 5, 1-4.	1.8	67
11	Constraint-Based Design-Space Exploration and Model Synthesis. <i>Lecture Notes in Computer Science</i> , 2003, , 290-305.	1.0	60
12	Composition and Cloning in Modeling and Meta-Modeling. <i>IEEE Transactions on Control Systems Technology</i> , 2004, 12, 263-278.	3.2	59
13	Real-time fault diagnostics. <i>IEEE Intelligent Systems</i> , 1991, 6, 75-85.	1.1	58
14	SURE: A Modeling and Simulation Integration Platform for Evaluation of Secure and Resilient Cyber-Physical Systems. <i>Proceedings of the IEEE</i> , 2018, 106, 93-112.	16.4	55
15	Rapid synthesis of high-level architecture-based heterogeneous simulation: a model-based integration approach. <i>Simulation</i> , 2012, 88, 217-232.	1.1	52
16	Practical Implementation of Diagnosis Systems Using Timed Failure Propagation Graph Models. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2009, 58, 240-247.	2.4	51
17	Model-Based Integration Platform for FMI Co-Simulation and Heterogeneous Simulations of Cyber-Physical Systems. , 2014, , .		50
18	Towards Practical Runtime Verification and Validation of Self-Adaptive Software Systems. <i>Lecture Notes in Computer Science</i> , 2013, , 108-132.	1.0	49

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19	An end-to-end domain-driven software development framework. , 2003, , .		46
20	Model-Integrated Development of Cyber-Physical Systems. Lecture Notes in Computer Science, 2008, , 46-54.	1.0	46
21	Towards Verifying Model Transformations. Electronic Notes in Theoretical Computer Science, 2008, 211, 191-200.	0.9	45
22	Evolving Embedded Systems. Computer, 2010, 43, 34-40.	1.2	45
23	BARISTA: Efficient and Scalable Serverless Serving System for Deep Learning Prediction Services. , 2019, , .		45
24	Design patterns for open tool integration. Software and Systems Modeling, 2005, 4, 157-170.	2.2	44
25	RIAPS: Resilient Information Architecture Platform for Decentralized Smart Systems. , 2017, , .		43
26	A component model for hard real-time systems: CCM with ARINCâ€653. Software - Practice and Experience, 2011, 41, 1517-1550.	2.5	41
27	Automatic Domain Model Migration to Manage Metamodel Evolution. Lecture Notes in Computer Science, 2009, , 706-711.	1.0	38
28	MULTIGRAPH: an architecture for model-integrated computing. , 0, , .		35
29	Model-based software synthesis. IEEE Software, 1993, 10, 42-52.	2.1	34
30	A co-simulation framework for design of time-triggered automotive cyber physical systems. Simulation Modelling Practice and Theory, 2014, 43, 16-33.	2.2	34
31	3 Metamodelling. Lecture Notes in Computer Science, 2010, , 57-76.	1.0	34
32	Model-based software health management for real-time systems. , 2011, , .		31
33	TRANSAX: A Blockchain-Based Decentralized Forward-Trading Energy Exchanged for Transactive Microgrids. , 2018, , .		31
34	The multigraph and structural adaptivity. IEEE Transactions on Signal Processing, 1993, 41, 2695-2716.	3.2	29
35	A game-theoretic approach for power systems defense against dynamic cyber-attacks. International Journal of Electrical Power and Energy Systems, 2020, 115, 105432.	3.3	29
36	Resilient Information Architecture Platform for the Smart Grid: A Novel Open-Source Platform for Microgrid Control. IEEE Transactions on Industrial Electronics, 2020, 67, 9393-9404.	5.2	29

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37	Model-driven architecture for embedded software: A synopsis and an example. Science of Computer Programming, 2008, 73, 26-38.	1.5	28
38	A Novel Approach to Semi-automated Evolution of DSML Model Transformation. Lecture Notes in Computer Science, 2010, , 23-41.	1.0	28
39	Polyglot. , 2011, , .		27
40	Application of software health management techniques. , 2011, , .		23
41	Model-Based Control Design and Integration of Cyberphysical Systems: An Adaptive Cruise Control Case Study. Journal of Control Science and Engineering, 2013, 2013, 1-15.	0.8	23
42	Development of a Controller Hardware-in-the-Loop Platform for Microgrid Distributed Control Applications. , 2018, , .		23
43	Reusable Idioms and Patterns in Graph Transformation Languages. Electronic Notes in Theoretical Computer Science, 2005, 127, 181-192.	0.9	21
44	Co-simulation framework for design of time-triggered cyber physical systems. , 2013, , .		21
45	Distributed Real-Time Managed Systems: A Model-Driven Distributed Secure Information Architecture Platform for Managed Embedded Systems. IEEE Software, 2014, 31, 62-69.	2.1	21
46	MDE-Based Approach for Generalizing Design Space Exploration. Lecture Notes in Computer Science, 2010, , 46-60.	1.0	21
47	Model-based intelligent process control for cogenerator plants. Journal of Parallel and Distributed Computing, 1992, 15, 90-102.	2.7	20
48	A software platform for fractionated spacecraft. , 2012, , .		20
49	F6COM: A component model for resource-constrained and dynamic space-based computing environments. , 2013, , .		20
50	URMILA: Dynamically trading-off fog and edge resources for performance and mobility-aware IoT services. Journal of Systems Architecture, 2020, 107, 101710.	2.5	20
51	Integrating Security Modeling into Embedded System Design. , 2007, , .		19
52	DSLs. , 2008, , .		19
53	Achieving resilience in distributed software systems via self-reconfiguration. Journal of Systems and Software, 2016, 122, 344-363.	3.3	18
54	Time synchronization services for low-cost fog computing applications. , 2017, , .		18

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55	A passivity-based framework for resilient cyber physical systems. , 2009, , .		16
56	Component-oriented modeling of hybrid dynamic systems using the Generic Modeling Environment. , 0, , .		15
57	Model-based design for CPS with learning-enabled components. , 2019, , .		15
58	A Real-Time Component Framework: Experience with CCM and ARINC-653. , 2010, , .		14
59	Triggering Rowhammer Hardware Faults on ARM. , 2018, , .		14
60	Graph model-based approach to the representation, interpretation, and execution of signal processing systems. International Journal of Intelligent Systems, 1988, 3, 269-280.	3.3	13
61	Automatic Verification of Component-Based Real-Time CORBA Applications. , 0, , .		13
62	Specifying the correctness properties of model transformations. , 2008, , .		13
63	Towards a Generic Design Space Exploration Framework. , 2010, , .		13
64	Efficient Out-of-Distribution Detection Using Latent Space of \hat{I}^2 -VAE for Cyber-Physical Systems. ACM Transactions on Cyber-Physical Systems, 2022, 6, 1-34.	1.9	13
65	Towards a verifiable real-time, autonomic, fault mitigation framework for large scale real-time systems. Innovations in Systems and Software Engineering, 2007, 3, 33-52.	1.6	12
66	Range-Finding Sensor Degradation in Gamma Radiation Environments. IEEE Sensors Journal, 2014, , 1-1.	2.4	12
67	Integrated simulation testbed for security and resilience of CPS. , 2018, , .		12
68	Dynamic-weighted simplex strategy for learning enabled cyber physical systems. Journal of Systems Architecture, 2020, 111, 101760.	2.5	12
69	Towards Model-Based Integration of Tools and Techniques for Embedded Control System Design, Verification, and Implementation. Lecture Notes in Computer Science, 2009, , 20-34.	1.0	12
70	A CubeSat-payload radiation-reliability assurance case using goal structuring notation. , 2017, , .		11
71	An Experimental Model-Based Rapid Prototyping Environment for High-Confidence Embedded Software. , 2009, , .		10
72	Compensating for Timing Jitter in Computing Systems with General-Purpose Operating Systems. , 2009, , .		10

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73	Distributed and Managed: Research Challenges and Opportunities of the Next Generation Cyber-Physical Systems. , 2014, , .		10
74	Using temporal causal models to isolate failures in power system protection devices. IEEE Instrumentation and Measurement Magazine, 2015, 18, 28-39.	1.2	10
75	ReSonAte: A Runtime Risk Assessment Framework for Autonomous Systems. , 2021, , .		10
76	The Model-Integrated Computing Toolsuite: Metaprogrammable Tools for Embedded Control System Design. , 2006, , .		10
77	A Practical Method for Creating Plant Diagnostics Applications. Integrated Computer-Aided Engineering, 1996, 3, 291-304.	2.5	9
78	A model-integrated information system for increasing throughput in discrete manufacturing. , 0, , .		9
79	Towards Fault-Adaptive Control of Complex Dynamical Systems. , 2004, , 347-368.		9
80	Distributed diagnosis of complex systems using timed failure propagation graph models. , 2010, , .		9
81	A Rapid Testing Framework for a Mobile Cloud. , 2014, , .		9
82	A testbed to simulate and analyze resilient cyber-physical systems. , 2015, , .		9
83	Implementation of a distributed microgrid controller on the Resilient Information Architecture Platform for Smart Systems (RIAPS). , 2017, , .		9
84	Vulnerability analysis of power systems based on cyber-attack and defense models. , 2018, , .		9
85	Polyglot: Systematic Analysis for Multiple Statechart Formalisms. Lecture Notes in Computer Science, 2013, , 523-529.	1.0	9
86	Towards a time-triggered schedule calculation tool to support model-based embedded software design. , 2009, , .		9
87	Model-based fault-adaptive control of complex dynamic systems. , 0, , .		8
88	Notions of Diagnosability for Timed Failure Propagation Graphs. IEEE Autotestcon Proceedings, 2006, , .	0.0	8
89	A Meta-Framework for Design Space Exploration. , 2011, , .		8
90	DREMS ML: A wide spectrum architecture design language for distributed computing platforms. Science of Computer Programming, 2015, 106, 3-29.	1.5	8

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91	Radiation Response and Adaptive Control-Based Degradation Mitigation of MEMS Accelerometers in Ionizing Dose Environments. IEEE Sensors Journal, 2017, 17, 1132-1143.	2.4	8
92	Transactive energy demo with RIAPS platform. , 2017, , .		8
93	A Hardware-in-the-Loop Real-Time Testbed for Microgrid Hierarchical Control. , 2018, , .		8
94	Practical Causal Models for Cyber-Physical Systems. Lecture Notes in Computer Science, 2019, , 211-227.	1.0	8
95	Designing a decentralized fault-tolerant software framework for smart grids and its applications. Journal of Systems Architecture, 2020, 109, 101759.	2.5	8
96	Model-integrated system development: models, architecture, and process. , 0, , .		7
97	Model-Based Software Tools for Integrated Vehicle Health Management. , 0, , .		7
98	SOAMANET: A Tool for Evaluating Service-Oriented Architectures on Mobile Ad-Hoc Networks. , 2010, , .		7
99	Automated synthesis of Time-Triggered Architecture-based TrueTime models for platform effects simulation and analysis. , 2010, , .		7
100	Deliberative, search-based mitigation strategies for model-based software health management. Innovations in Systems and Software Engineering, 2013, 9, 293-318.	1.6	7
101	Resilience at the edge in cyber-physical systems. , 2017, , .		7
102	Model-based System Health Management and Contingency Planning for Autonomous UAS. , 2019, , .		7
103	On the Correctness of Model Transformations in the Development of Embedded Systems. Lecture Notes in Computer Science, 2008, , 1-18.	1.0	7
104	Model-integrated development of complex applications. , 0, , .		6
105	Enabling Self-Management by Using Model-Based Design Space Exploration. , 2010, , .		6
106	Managing the quality of software product line architectures through reusable model transformations. , 2011, , .		6
107	Real-time fault tolerant deployment and configuration framework for cyber physical systems. ACM SIGBED Review, 2013, 10, 32-32.	1.8	6
108	Integrated Analysis of Temporal Behavior of Component-Based Distributed Real-Time Embedded Systems. , 2015, , .		6

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109	ROSMOD: A Toolsuite for Modeling, Generating, Deploying, and Managing Distributed Real-time Component-based Software using ROS. Electronics (Switzerland), 2016, 5, 53.	1.8	6
110	An Adaptive Interleaving Algorithm for Multi-Converter Systems. , 2018, , .		6
111	Device Access Abstractions for Resilient Information Architecture Platform for Smart Grid. IEEE Embedded Systems Letters, 2019, 11, 34-37.	1.3	6
112	Science of design for societal-scale cyber-physical systems: challenges and opportunities. Cyber-Physical Systems, 2019, 5, 145-172.	1.6	6
113	Fault-Adaptive Autonomy in Systems with Learning-Enabled Components. Sensors, 2021, 21, 6089.	2.1	6
114	A transformation instance-based approach to traceability. , 2010, , .		6
115	Rapid property specification and checking for model-based formalisms. , 2011, , .		5
116	Establishing Secure Interactions across Distributed Applications in Satellite Clusters. , 2014, , .		5
117	ROSMOD: a toolsuite for modeling, generating, deploying, and managing distributed real-time component-based software using ROS. , 2015, , .		5
118	Bayesian Inference Modeling of Total Ionizing Dose Effects on System Performance. IEEE Transactions on Nuclear Science, 2015, 62, 2517-2524.	1.2	5
119	Demo Abstract: RIAPS " A Resilient Information Architecture Platform for Edge Computing. , 2016, , .		5
120	A simulation testbed for cascade analysis. , 2017, , .		5
121	Simulation of Transistor-Level Radiation Effects on System-Level Performance Parameters. IEEE Transactions on Nuclear Science, 2019, 66, 1634-1641.	1.2	5
122	Fault-Adaptivity in Hard Real-Time Component-Based Software Systems. Lecture Notes in Computer Science, 2013, , 294-323.	1.0	5
123	CPS Design with Learning-Enabled Components. , 2019, , .		5
124	Practical considerations in systems diagnosis using timed failure propagation graph models. IEEE Autotestcon Proceedings, 2007, , .	0.0	4
125	Towards A Model-Based Autonomic Reliability Framework for Computing Clusters. , 2008, , .		4
126	Model-based adaptation of flight-critical systems. , 2009, , .		4

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127	Discrete-time IDA-passivity based control of coupled tank processes subject to actuator saturation. , 2010, , .		4
128	Total-Ionizing-Dose Induced Timing Window Violations in CMOS Microcontrollers. IEEE Transactions on Nuclear Science, 2014, 61, 2979-2984.	1.2	4
129	Demo Abstract: SURE: An Experimentation and Evaluation Testbed for CPS Security and Resilience. , 2016, , .		4
130	Towards an architecture for evaluating and analyzing decentralized Fog applications. , 2017, , .		4
131	Distributed Microgrid Synchronization Strategy Using a Novel Information Architecture Platform. , 2018, , .		4
132	Enabling Strong Isolation for Distributed Real-Time Applications in Edge Computing Scenarios. IEEE Aerospace and Electronic Systems Magazine, 2019, 34, 32-45.	2.3	4
133	On the Design of Fault- Tolerance in a Decentralized Software Platform for Power Systems. , 2019, , .		4
134	Augmenting Learning Components for Safety in Resource Constrained Autonomous Robots. , 2019, , .		4
135	DeepECO: Applying Deep Learning for Occupancy Detection from Energy Consumption Data. , 2019, , .		4
136	Domain Globalization: Using Languages to Support Technical and Social Coordination. Lecture Notes in Computer Science, 2015, , 70-87.	1.0	4
137	Towards Verification of Model Transformations Via Goal-Directed Certification. Lecture Notes in Computer Science, 2006, , 67-83.	1.0	4
138	Model transformations in the model-based development of real-time systems. , 2006, , .		3
139	Towards a resilient deployment and configuration infrastructure for fractionated spacecraft. ACM SIGBED Review, 2013, 10, 29-32.	1.8	3
140	Analysis, verification, and management toolsuite for cyber-physical applications on time-varying networks. , 2014, , .		3
141	Towards an analysis-driven rapid design process for cyber-physical systems. , 2015, , .		3
142	A modeling framework to integrate exogenous tools for identifying critical components in power systems. , 2017, , .		3
143	Diagnostics and prognostics using temporal causal models for cyber physical energy systems. , 2017, , .		3
144	Heuristics-based approach for identifying critical N " k contingencies in power systems. , 2017, , .		3

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145	Bayesian Modeling of COTS Power MOSFET Ionizing Dose Impact on Circuit Response. , 2017, , .		3
146	An analytical framework for smart manufacturing. MATEC Web of Conferences, 2018, 249, 03010.	0.1	3
147	Resilient Information Architecture Platform for Smart Systems (RIAPS): Case Study for Distributed Apparent Power Control. , 2018, , .		3
148	Short Paper: Towards An Edge-Located Time-Series Database. , 2019, , .		3
149	Deep-Edge: An Efficient Framework for Deep Learning Model Update on Heterogeneous Edge. , 2020, , .		3
150	Workflow Automation for Cyber Physical System Development Processes. , 2020, , .		3
151	Automatic Fault Tree Generation from Radiation-Induced Fault Models. , 2020, , .		3
152	Embedded systems security co-design. ACM SIGBED Review, 2007, 4, 1-4.	1.8	3
153	Reusing Model Transformations While Preserving Properties. Lecture Notes in Computer Science, 2010, , 44-58.	1.0	3
154	Qualitative Fault Modeling in Safety Critical Cyber Physical Systems. , 2020, , .		3
155	Improving the Usability of a Graph Transformation Language. Electronic Notes in Theoretical Computer Science, 2006, 152, 207-222.	0.9	2
156	Evaluating the Correctness and Effectiveness of a Middleware QoS Configuration Process in Distributed Real-Time and Embedded Systems. , 2008, , .		2
157	Component-based modeling of dynamic systems using heterogeneous composition. , 2012, , .		2
158	Architecting Health Management into Software Component Assemblies: Lessons Learned from the ARINC-653 Component Mode. , 2012, , .		2
159	Software health management. Innovations in Systems and Software Engineering, 2013, 9, 217-217.	1.6	2
160	A case study on the model-based design and integration of automotive cyber-physical systems. , 2013, , .		2
161	A semi-formal description of migrating domain-specific models with evolving domains. Software and Systems Modeling, 2013, 13, 807.	2.2	2
162	Using temporal causal models to isolate failures in Power System protection devices. , 2014, , .		2

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163	A component-based approach for modeling failure propagations in power systems. , 2015, , .		2
164	System Health Awareness in Total-Ionizing Dose Environments. IEEE Transactions on Nuclear Science, 2015, 62, 1674-1681.	1.2	2
165	DREMS-OS: An Operating System for Managed Distributed Real-Time Embedded Systems. , 2017, , .		2
166	A dependable, prognostics-incorporated, N-S modular battery reconfiguration scheme with an application to electric aircraft. , 2017, , .		2
167	Towards Operational Use of Unit Manufacturing Process Models. , 2019, , .		2
168	Development of a Flight-Program-Ready Radiation Model-Based Assurance Platform. , 2020, , .		2
169	A System-Level Modeling Approach for Simulating Radiation Effects in Successive-Approximation Analog-to-Digital Converters. IEEE Transactions on Nuclear Science, 2021, 68, 1465-1472.	1.2	2
170	From Modeling to Model-Based Programming. Lecture Notes in Computer Science, 2018, , 295-308.	1.0	2
171	20 The Model-Integrated Computing Tool Suite. Lecture Notes in Computer Science, 2010, , 369-376.	1.0	2
172	Dynamic symbolic execution for the analysis of web server applications in Java. , 2019, , .		2
173	Lessons Learned from Building a Graph Transformation System. Lecture Notes in Computer Science, 2010, , 202-223.	1.0	2
174	Model-based On-board Decision Making for Autonomous Aircraft. Proceedings of the Annual Conference of the Prognostics and Health Management Society Prognostics and Health Management Society Conference, 2019, 11, .	0.2	2
175	LSTM-Based Online Prediction Method for Building Electric Load During COVID-19. Proceedings of the Annual Conference of the Prognostics and Health Management Society Prognostics and Health Management Society Conference, 2020, 12, 8.	0.2	2
176	Neural Networks in GTA Weld Modeling and Control. , 1989, , .		2
177	Online stability validation using sector analysis. , 2010, , .		1
178	The GDSE framework. , 2010, , .		1
179	Reliable Distributed Real-Time and Embedded Systems through Safe Middleware Adaptation. , 2012, , .		1
180	A newly introduced Industry Voice Column. Software and Systems Modeling, 2013, 12, 441-442.	2.2	1

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181	A resilient and secure software platform and architecture for distributed spacecraft. Proceedings of SPIE, 2014, , .	0.8	1
182	Modeling Network Medium Access Protocols for Network Quality of Service Analysis. , 2015, , .		1
183	A Systematic Approach of Identifying Optimal Load Control Actions for Arresting Cascading Failures in Power Systems. , 2017, , .		1
184	Diagnosis in Cyber-Physical Systems with Fault Protection Assemblies. , 2018, , 201-225.		1
185	Transportation Networks. , 2019, , 425-446.		1
186	An Integrated Cyber-Physical Fault Management Approach. , 2020, , .		1
187	Automotive Software: A Challenge and Opportunity for Model-Based Software Development. Lecture Notes in Computer Science, 2006, , 103-115.	1.0	1
188	Power-attack. , 2021, , .		1
189	Applying a Grouping Operator in Model Transformations. Lecture Notes in Computer Science, 2008, , 410-425.	1.0	1
190	High precision automatic scheduling of periodic task sets for microcontrollers. , 2008, , .		0
191	Third international workshop on graph and model transformations. , 2008, , .		0
192	Using Runtime Verification to Design a Reliable Execution Framework for Scientific Workflows. , 2009, , .		0
193	Evolution in a context of an model-integrated tool environment. , 2012, , .		0
194	An improved distance relay model with directional element, and memory polarization for TCD based fault propagation studies. , 2015, , .		0
195	DVER: A tool chain for cross-validation and perfection of discrete model-based diagnostic systems. , 2016, , .		0
196	Timing analysis of a middleware-based system. , 2017, , .		0
197	Timing analysis for UAS application software. , 2018, , .		0
198	Demo: Transactive Energy Application with RIAPS. , 2019, , .		0

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199	A CPS toolchain for learning-based systems. , 2019, , .		0
200	DeepNNCar: A Testbed for Deploying and Testing Middleware Frameworks for Autonomous Robots. , 2019, , .		0
201	A Binary Decision Diagram Based Cascade Prognostics Scheme For Power Systems. , 2020, , .		0